

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): Equipment for use on a satellite, the satellite having a support structure that includes a heat transfer system (20, 20a) including at least one electronic module (21) for the payload or the platform of a satellite (50) adapted to be supported by a structure (24) of said satellite, the satellite structure including a heat transfer system (44, 10) for transporting dissipated heat to a radiator (51), characterized in that, said equipment includes comprising:

an electronic module;

at least one heat transfer means (22, 30, 31, 34, 341-345) for transferring heat dissipated by the electronic module; and

connector means (26, 34, 35, 37) for connecting said transfer means to said heat transfer system (10) of the structure in such a manner as to enable the supply of heat exchange fluid (16) to said transfer means and the transfer of heat dissipated by the electronic module to the radiator.

2. (original): Equipment according to claim 1, characterized in that it includes a plurality of transfer means and a plurality of connector means adapted to be connected to a corresponding plurality of heat transfer systems with their own specific power dissipation capacity and temperature range regulation capacity.

3. (previously presented): Equipment according to claim 1, characterized in that the heat transfer system is of the single-phase fluid loop type and said transfer means comprise a pipe (22) conformed to have an optimum common surface with the module (21) and having two ends (O1, O2) to which are articulated said connector means for the connection to said heat transfer system of the structure.

4. (original): Equipment according to claim 3, characterized in that said ends are at the level of a bottom plane of contact of the equipment with the structure and in that the heat transfer system of the structure includes branch connections (27, 28) whose ends have openings at the level of a top plane of contact of the structure with the equipment so as to cause the corresponding openings to coincide when fixing the equipment to the structure.

5. (original): Equipment according to claim 3, characterized in that said pipe (22) continues a predetermined distance beyond said openings (O1, O2) outside the equipment thereby forming external segments (30, 31).

6. (original): Equipment according to claim 5, characterized in that the cooperation between the equipment (20) and the structure (24) is effected by insertion of the segments (30, 31) inside respective branch connections (27, 28).

7. (original): Equipment according to claim 3, characterized in that the connector device includes a locking/unlocking device (260, 261) that selectively blocks and authorizes circulation of fluid in the pipe (22).

8. (previously presented): Equipment according to claim 1, characterized in that the heat transfer system is of the two-phase fluid loop type (10) and the equipment includes:

an evaporator assembly (34) comprising at least one tube (341, 342) for supplying the assembly with heat-exchange fluid in the liquid state, at least one external enclosure (343, 344) of the evaporator tube adapted to have an optimum surface with the module to collect vapor generated on the exterior surface of the tube when the module is dissipating heat, and a vapor manifold (345), and

connector means (34, 35, 37) for the tube (341, 342) and the manifold (345) adapted to connect them respectively to a supply pipe (17) of heat-exchange fluid (16) from a tank (13) and to a vapor transport line (36) for conveying vapor to the condenser (12) of the heat system.

9. (original): Equipment according to claim 1, characterized in that the module (21) includes connecting means (23) for connecting it to signal transport means situated in the structure (24) and adapted to convey:

an electrical power supply providing various voltages for the equipment,
and/or service module signals such as those for acquiring telemetry from the equipments,
for controlling the equipments, time references, and frequency references,

and/or payload signals such as microwave, optical and digital signals.

10. (currently amended): Equipment according to claim ~~4~~9, characterized in that said signal transport means employ optical technology and the connection means include microwave/optical converter means (210, 211).

11. (previously presented): A satellite structure, characterized in that it supports equipment according to claim 1.

12. (previously presented): A satellite structure according to claim 1, characterized in that it is provided with mechanical, thermal and electrical connection means adapted to connect a plurality of radiators.

13. (original): An arrangement of equipments for a satellite structure according to claim 12, characterized in that each radiator is associated with a group of equipments corresponding to a specific temperature and therefore necessitating appropriate cooling.

14. (currently amended): A communication system (42) for a satellite, characterized ~~in that it includes~~ comprising:
~~at least one~~ the equipment according to claim ~~8~~10, and

~~the support structure (24) in that said equipment includes at least transfer means (22, 30, 31, 34, 341-345) for transferring heat dissipated by the electronic module and connector means (26, 34, 35, 37) for connecting said transfer means to said heat transfer system (10) of the structure in such a manner as to enable the supply of heat exchange fluid (16) to said transfer means and the transfer of heat dissipated by the electronic module to the radiator; wherein said signal transport means employ optical technology and the connection means include microwave/optical converter means (210, 211).~~

15. (original): A system according to claim 14, characterized in that it includes:

a cross-connect unit (46) for payload signals,

a service module subsystem (45),

a power supply subsystem (43),

the latter being respectively connected to said signal transport means.

16. (original): A system according to claim 15, characterized in that the cross-connect unit includes means for statically or dynamically programming the module (21).

17. (previously presented): A system according to claim 14, characterized in that, to convey optical signals and high-level microwave signals that have been converted or are intended to be converted into the optical domain, said connection means of the equipment

include microwave/optical converter means (210, 211), said transport means include at least one optical fiber (41b), and the cross-connect unit uses optical technology.

18. (new): A system for a satellite, comprising:

the equipment according to claim 1, and

the support structure.

19. (new): A system for a satellite, comprising:

a radiator;

a support structure, comprising a main fluid conduit containing a fluid that transfers heat to the radiator, and

equipment supported by the support structure, comprising

an electronic module that generates heat,

a module fluid conduit that transfers the heat generated by the electronic module to the main fluid conduit via a fluid connection, and

a connector that couples said module fluid conduit to the main fluid conduit, the connector structured to be decoupled from the main fluid conduit.

20. (new): The system for a satellite of claim 19, wherein the module fluid conduit is provided at a position proximate the electronic module.

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21. (new): The system for a satellite of claim 19, wherein the module fluid conduit has a common surface with the electronic module.

22. (new): The system for a satellite of claim 19, wherein the main fluid conduit has a locking device that shuts off the fluid connection between the module fluid conduit and the main fluid conduit.

23. (new): The system for a satellite of claim 19, wherein said connector comprises an inlet connection and an outlet connection, wherein outlet connection is coupled to the main fluid conduit.

24. (new): The system for a satellite of claim 19, wherein the equipment is a payload of the satellite.